

Name: Solutions

Polarity Practice Worksheet 1

For each of the following pairs of compounds, determine which is most polar based on their Lewis structures. Electronegativities of elements are given in the brackets under each question.

1. methyl chloride (CHCl_3) or methyl bromide (CHBr_3)
(C = 2.5, H = 2.1, Cl = 3.0, Br = 2.8)

CHCl_3 because C-Cl bond is more polar with a higher ΔEN than C-Br (0.3)

2. water or hydrogen sulfide (H_2S)
(H = 2.1, O = 3.5, S = 2.5)



$\Delta\text{EN}_{\text{O-H}} > \Delta\text{EN}_{\text{S-H}}$

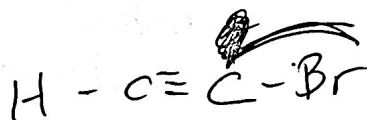
O-H is more polar than S-H.
 H_2O is more polar.

3. hydrochloric acid (HCl) or hydroiodic acid (HI)
(H = 2.1, Cl = 3.0, I = 2.5)

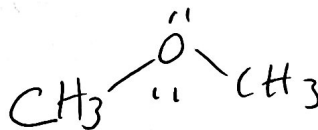
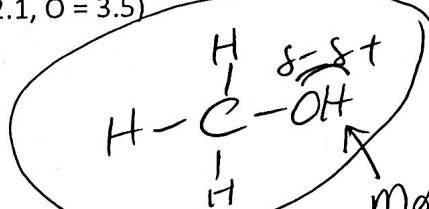
HCl is more polar

$\Delta\text{EN}_{\text{HCl}} > \Delta\text{EN}_{\text{HI}}$

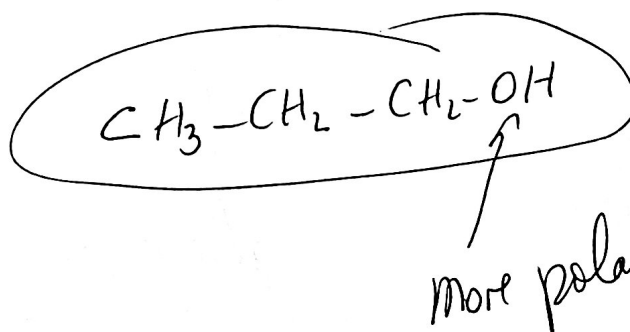
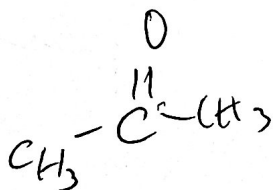
4. bromoacetylene (C_2HBr) or chloroacetylene (C_2HCl)
(C = 2.5, H = 2.1, Br = 2.8, Cl = 3.0)



5. methanol (CH_3OH) or diethyl ether $[(\text{CH}_3)_2\text{O}]$
(C = 2.5, H = 2.1, O = 3.5)



6. acetone $[(\text{CH}_3)_2\text{CO}]$ or propanol ($\text{C}_3\text{H}_8\text{O}$)
(C = 2.5, H = 2.1, O = 3.5)



Name: Soliman

Intermolecular Forces Worksheet 1

What is the strongest intermolecular force present for each of the following compounds?

1. water H-bonding
2. carbon tetrachloride London dispersion forces
3. ammonia H-bonding
4. carbon dioxide London dispersion forces
5. phosphorous trichloride Dipole-dipole
6. nitrogen London dispersion forces
7. ethane (C_2H_6) London dispersion forces
8. acetone (CH_3CO) dipole-dipole
9. methanol (CH_3OH) H-bonds
10. borane (BH_3) London dispersion forces

